DOCUMENT RESUME

ED 315 395 SP 031 888

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TITLE Comparison of Preservice Teachers and Inservice Teachers on the Affective Variables of the Canfield Learning Styles Inventory.
PUB DATE 89
NOTE 11p.; Paper presented at the Annual Meeting of the Mid-South Educational Research Association (Little Rock, AR, November 7-10, 1989).
PUB TYPE Speeches/Conference Papers (150) -- Reports - Research/Technical (143)

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS Adult Learning; *Behavior Patterns; *Cognitive Style; Comparative Analysis; Education Majors; Higher Education; *Individual Characteristics; *Inservice Teacher Education; Learning Processes; *Preservice Teacher Education; *Public School Teachers
IDENTIFIERS *Canfield Learning Styles Inventory

ABSTRACT

Comparison was made of preservice and inservice teachers on the affective variables of the Canfield Learning Styles Inventory. The sample was composed of 93 public school teachers who participated in a staff development workshop and 71 teacher education students. Three major categories of the inventory were used in the study: learning conditions and motivational factors; interest in subject area; and mode of delivery. The learning style profile of preservice teachers revealed a high preference for people and peers, and a low preference for independent conditions of learning. The inservice group demonstrated a preference for authority and qualitative subject matter. One of the major findings of the study was that older students, the inservice group, exhibited a strong traditional preference for learning. Implications for planning specific educational experiences and resources for different age groups are considered. (JD)

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COMPARISON OF PRESERVICE TEACHERS AND INSERVICE TEACHERS ON THE AFFECTIVE VARIABLES OF THE CANFIELD LEARNING STYLES INVENTORY

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Presented at the Annual Meeting
of the Mid-South Educational Research Association

Little Rock, Arkansas

1989

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Comparison of Preservice Teachers and Inservice Teachers on the Affective Variables of the Canfield Learning Styles Inventory

Pamela A. Catledge Kirk and E. C. O'Neal

Educational research is replete with the concept, and more recently, the application of learning style research. Many of the leading professional journals and associations (Phi Delta Kappan, National Association of Secondary School Principals, and the Association for Supervision and Curriculum Development) have magnified the importance of the learning style phenomenon by their outspoken advocacy for continual investigation and application. Learning styles may be defined simply as a student's preferred way of learning. Bennett (1979) defined learning styles as "a cluster of personality and mental characteristics which influence how a student perceives, remembers, thinks, and solves problems". Dunn (1984) defined learning style as "the conditions under which each person begins to concentrate on, absorb, process, and retain new or difficult information and skills." Smith (1976) stated that these definitions range from concerns about preferred sensory modalities to descriptions of personality characteristics that have implications for behavioral patterns in various learning situations.

Recognizing that each individual differs in their thinking, perception, and memory, allows us to recognize style as a combination of the aforementioned traits (Pettigrew and Heikkinen, 1985). Every student has a learning style regardless of IQ or achievement (Dunn, 1984). Copenhaver's research (1979) revealed that students' learning styles were stable across subject areas, but not over time. Dunn's extensive and relevant probe into the various concomitant areas of learning styles has expanded the body of knowledge pertinent to learning styles and their application to the classroom. In the Exceptional Children, April, 1983, Dunn summarized the investigations that verify the products of

teaching youngsters through strategies that complement their learning style. Seemingly, these investigations verify increased academic achievement, improved attitudes, and reduced numbers of discipline problems. Dunn, Dunn, Price, and Sanders (1979) reported a positive relationship between learning style elements and self-concept.

While learning style advocates stress the importance of individual learning characteristics, little research direction has been focused on adult learning style preferences and differences that evolve over time and experiences. An informative study by Ommen, Brainard, and Canfield (1979) compared the learning style preferences of 1,064 older students (25 years and more) with 1,760 younger students (20 years and less). Their findings demonstrated a significant difference at the .01 level on 17 of the 21 scales. Another major finding of this study was that older students preferred traditional instructional formats as opposed to iconics and the direct experience mode of learning.

The intent of this study was to accumulate more descriptive data on the learning styles of older populations and to compare these with other populations. This information will provide additional understanding about the favored conditions for learning among adult populations.

The Problem

The problem in this study was to compare preservice teachers and inservice teachers on the affective variables of the Canfield Learning Styles Inventory. The specific research questions in this study were:

1. Which affective variables differed significantly between the preservice teachers and inservice teachers?
2. Which of the affective variables contributed significantly to the descriminant analysis?

Research Procedure

Data for the predictor variables that affect learning, and contribute to the satisfactory and effective adjustment to the teaching learning situation were collected from career ladder subjects during an inservice staff development training session and from preservice teacher educator subjects during pedagogy classes. The preservice teacher education group had met the necessary standards for admission to teacher education. The Canfield Learning Styles Inventory (Form A) was used to provide information on the two groups, preservice and inservice teacher educators.

Subjects

The sample was composed of ninety-three (93) public school teachers in a district in Mississippi who participated in a staff development workshop. The preservice group consisted of seventy-one (71) teacher education students enrolled in professional sequence courses at Mississippi State University. All participants completed the learning style inventory. There were 27 male and 66 female subjects in the inservice group. Their teaching experience varied from thirty years to beginning teachers. The preservice group consisted of 14 male and 57 females. The preservice group had completed at least forty-five of general education courses and had met other entry requirements for admission into teacher education.

Instrument

Canfield's Learning Styles Inventory (1980) was the testing instrument. The instrument was constructed to help individuals become cognizant of their learning preferences in regard to conditions of learning, the content, the mode of learning, and the students' expectation of success (Claxton, Adams, Williams, 1982). Canfield surmised that learning was determined by classroom climate, a group of interpersonal and motivational factors (conditions), interest in the

subject area (content), sansory input (mode), and the student's prediction of success or failure (expectation).

The inventory consists of thirty (30) items and requires the subject to rank order four options in each item of the LSI, a forced choice format. Scores range from a low of six (indicative of a very high preference) and a high of twenty-six (indicating a very low preference). Scoring extended across four major categories; Conditions, Content, Mode, and Expectations. Each category contains four to eight descriptive scales. The research in this study focused on learning preferences and not on a prediction of success or failure, consequently the Expectancy category and its inclusive scales were not used.

The Froelich method was initially employed by Canfield to determine scale reliability (Garrett, 1966). Garrett (1966) explained this method as a simple Pearson Correlational statistical technique that involved an inherent correction factor to accommodate the attenuation of the sample. Three hundred and sixty-nine community college students were administered the inventory. The Learning Styles Manual, Form A, reported scale reliabilities which ranged from .59 to .92 (Canfield, 1980). Correlations of the first half of the inventory compared to the second half were taken to determine split half reliabilities. The correlational coefficients ranged from .96 to .99. (Canfield, 1980).

Methods of Data Analysis

Means and standard deviations of the seventeen variables were determined for each group. Analysis of variance was used to determine if there was significant differences between the groups on each of the variables of the instrument. Discriminant analysis was used to determine the set of variables differentiating between the teachers' learning styles.

Results of the Study

The results of the analysis of variance showed eleven of the seventeen variables were significantly different. The means, standard deviations, and

F-ratios are shown in Table I.

Table I

Comparison of Inservice and Preservice Teachers on Learning Style Variables

Learning Style Variable	Preservice $\bar{X}$	Preservice SD	Inservice $\bar{X}$	Inservice SD	F Ratio
Conditions					
Peer	13.23	3.19	14.44	3.43	5.37*
Organization	10.65	3.33	11.94	2.71	7.44**
Goal Setting	18.00	3.51	15.85	2.72	19.54**
Competition	18.04	2.66	17.77	2.64	.41
Instructor	11.80	4.09	14.53	3.52	20.89**
Detail	11.68	3.62	13.88	2.74	19.69**
Independence	20.23	3.12	16.45	3.26	55.96**
Authority	16.24	3.34	15.19	3.46	3.79*
Content					
Numeric	17.21	5.14	15.61	4.66	4.34*
Qualitative	14.90	5.13	13.63	3.79	3.31
Inanimate	17.12	4.06	16.18	3.61	2.47
People	10.76	3.80	14.18	3.72	33.46**
Mode					
Listening	13.82	4.34	14.70	4.31	1.68
Reading	20.71	7.88	16.09	4.56	22.25**
Iconic	13.89	3.80	14.37	3.30	.75
Direct Experience	12.42	4.90	14.52	4.50	8.08**
Expectancy Score	23.62	12.14	20.76	10.74	2.54

* Significant .05 level
** Significant .01 level

Note: Lower values signify higher preference

The preservice teachers had a significantly higher preference for peer conditions, organization conditions, instructor conditions, detail conditions, people content, and the direct experience mode. When plotted on the learning style profile, this group showed a high preference for peer conditions and

people content, and a low preference for independence conditions.

The inservice teachers had a significant higher preference for goal setting conditions, independence conditions, authority conditions, numeric content, and the reading mode. When the mean scores were plotted on the learning style profile, this group showed a high preference for authority conditions, and qualitati e subject matter.

The results of the discriminant analysis are shown in Table II and Table III.

Table II

Results of Discriminant Analysis of Differentiating Variables Between Teacher Groups

Function	Percentage of Variance	Canonical Correlation	Wilks-Lamba	df	Chi Square
1	100	.69	.52	9	101.8*

* Significant at .01

Table III

Learning Style Variables Contributing to Significant Discriminant Set

Learning Style Variable	Preservice $\bar{X}$	Preservice SD	Inservice $\bar{X}$	Inservice SD	Function
Independence Conditions	20.23	3.12	16.45	3.26	.63
Direct Experience Mode	12.42	4.90	14.52	4.50	.43
People Content	10.76	3.80	14.18	3.72	.40
Authority Conditions	16.24	3.34	15.19	3.46	.30
Peer Conditions	13.23	3.19	14.44	3.43	.30
Detail Conditions	11.68	3.62	13.88	2.74	.24
Reading Mode	20.71	7.88	16.09	4.56	.24
Listening Mode	13.82	4.34	14.70	4.31	.22
Inanimate Content	17.12	4.06	16.18	3.61	.15

Note: Lower values signify higher preference.

Function 1 with a chi-square of 101.8 and a canonical correlation of .69 was significant at the .01 level. In Function 1 three variables loaded to the discriminant set of variables at the .40 level or higher. These variables are independence conditions, direct experience mode, and people content. Eighty-five percent of the grouped cases are correctly classified as shown in Table IV.

Table IV

Classification Results of Preservice and Inservice Teachers

Teacher Group	Number	Predicted Group Membership Preservice	Inservice
Preservice	71	57 (80.3%)	14 (19.7%)
Inservice	93	11 (11.8%)	82 (88.2%)

Percent of grouped Cases Correctly Classified: 84.76%

Implications

These data show that there are significant differences between preservice teacher groups and inservice groups. Based upon the findings of this study, educational experiences and resources for the two aforementioned groups can be planned with more specificity.

The learning style profile of preservice teachers revealed a high preference for people, peers, and a low preference for independent conditions of learning. The people preference area of interest indicated the preservice group's preference for activities that involve others, working around or with people. Homogeneous, heterogeneous, and interest grouping patterns are a natural outgrowth of this preference. A preference for peers suggested that preservice teachers enjoy teamwork, and maintaining good relations with other students. Cooperative

learning, problem-solving, and interactive instructional techniques will best meet this group's demonstrated choice in regard to conditions for learning. A low preference for independence or aversion for working alone reinforces their valuing of peer interaction as an important condition for learning. Generally, appropriate instructional planning for this group included peer/people oriented activities such as role plays, coaching by peers, debates, tutorial sessions with other students, outside experts, small group discussions, and learning games.

The inservice group demonstrated a preference for authority (conditions) and qualitative subject matter. Strong preference for the authority (conditions) scale suggested the group's concern with a controlled, formal learning environment, and the direct exercise of authority. Inservice teachers preferred lectures by recognized authorities, answers from the instructor rather than other students, clear-cut positions that controlled events and activities in the learning environment. The high preference of the qualitative (area of interest) scale reflected a predilection for words and language. Educational experiences for the inservice group should rely on activities that involve the use of the language (talking, writing, reporting, editing, critiquing, and reviewing).

One of the major findings of this study was that older students, the inservice group, did exhibit a strong traditional preference for learning. This finding supported an earlier study by Brainard, Ommen, and Canfield (1979) in which older students demonstrated a preference for the traditional instructional format.

Investigations of this nature tend to give educators increased awareness of the diversity within any group. Consequently, greater understanding of the variability of learning styles should challenge all educators to develop a comprehensive repertoire of educational strategies.

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